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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,560	06/24/2005	Toshio Morita	Q73670	6713
23373 7590 12/30/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER VDAYAKUMAR, KALLAMBELLA M	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 12/30/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/540,560

**Applicant(s)**

MORITA ET AL.

**Examiner**

KALLAMBELLA VIJAYAKUMAR

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 and 13-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10 and 13-23 is/are rejected.
- 7) ☒ Claim(s) 7 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

- Applicant's amendment along with the arguments filed 09/25/2008 has been entered. Claims 1, 10, 14 and 22 were amended. Claims 11-12 cancelled. Claims 1-10 and 13-23 as amended are currently pending with the application.
- Applicant's arguments with respect to claims have been fully considered but are moot in view of the new ground(s) of rejection. Applicant's amendment overcomes the rejections and objections to claims cited in the last office action. Applicants are correct in that Nishimura and Morita does not expressly teach the instant claim limitations, but the broad disclosure in them establishes an obviousness as presented below, And "[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

### *Claim Objections*

Claim 19 is objected to because of the following informalities: It misses the phrase Claim between in and 18 above in Line-2. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-4 and 13-15 are rejected under 35 USC 103(a) as obvious over Nishimura et al (US 6,489,026)

Nishimura et al teach boron doped VGCF with a diameter of 0.5 micron or less, and a length of 5-30 micron, and with a boron content of 1.03 wt% (CI-12, Ln 8-10, 27-30; CI-13, Tbl-1, Ex-1), that provided improved conductivity in a composite containing graphite and PVDF (CI-16, Tbl-3). The prior art teaches the VGCF to contain hollow filaments that are branched (CI-7, Ln 35-40). The formation of nodular structures at the portions of branching junctions would be obvious. The amount of fiber added was in the range of 0.1-20 wt% (CI-11, Ln 42-45). Nishimura et al further disclose that the inventive carbon fibers could be used as a filler in resins to improve electrical conductivity (CI-1, Ln 16-18) and using the carbon fibers with PVDF resin in negative electrodes (CI-15, Ln 37-41). The prior art further discloses that carbon black and graphite could be added to the negative electrode to enhance the conductivity (CI-2, Ln 16-19) .

The prior art fails to provide a working example containing carbon black and graphite, and the range for the VGCF addition per the claims.

However, It would have been obvious to a person of ordinary skilled in the art to add carbon black and graphite as conductivity enhancers in the negative electrode of Nishimura with predictable results and reasonable expectation of success, because Nishimura desires the addition of conductivity imparting additives to lower the resistance of the electrode with increased capacity (CI-2, Ln 40-46), and the addition of graphite and carbon black was well known in the art (CI-2, Ln 15-20). Addition of even small amounts of these agents will lie close to the lower end of the instant claimed ranges for the corresponding

components, and a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

Pertaining to the amount of VGCF in claims 1-2, the amount of VGCF overlaps with the range in claim-1 and touches the range in claim-2, and prima facie obvious over instant claimed ranges.

Pertaining to claims 3-4, the prior art teaches boron doped branched VGCF.

Pertaining to claims 13-15, the prior art teaches an electrode containing the components in similar ratios, and mixing of the components would have been obvious.

2. Claims 5-6, 8-10 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al (US 6,489,026) in view of Masuko et al (US 2002/0051903).

The disclosure on the coating composition by Nishimura et al as set forth in rejection-1 under 35 USC 103(a) herein incorporated.

The prior art fails to teach an electrode composition containing boron doped carbon black per the claims.

In the analogous art, Masuko et al teach the composition, structure, and making of boron doped structured carbon blacks and their use with VGCF in polymer electrolytes and electrodes (Abstract). The specific carbons included Ketjen EC-600JD (Pg-7, Table-1).

It would have been obvious to a person of ordinary skilled in the art to substitute the carbon black in the electrode of Nishimura with the CB of Masuko et al as functional equivalent with reasonable expectation of success because the teachings of Nishimura and Masuko are in the analogous art of electrodes, and Nishimura et al teach that that the conductive fillers could be used in polymer matrix, and prior art compositions have a common species of VGCF as a conductive filler. The carbons of Masuko meet the limitation specific carbons in claims 5-6, 8-10, and 21-22.

3. Claims 1-6, 9-10, 13-20 and 23 are rejected under 35 U.S.C. 103(a) as obvious over Morita et al (WO 02/49412 as evidenced by US 7,122,132).

Morita et al teach the composition of a conductive transparent film comprising boron doped branched VGCF with diameter of 0.05-0.1 micron and an aspect ratio of 10-15,000 dispersed in a resin at 5- 40% by mass (Cl-19, Clm 11-23). The composition further contained Carbon black such as Ketejen black. Prior art further teaches an example containing 0.25 pbw VGCF with an OD of 0.04 micron and an aspect ratio of 40, and 0.25 pbw Ketjen Black-E and 4.5 pbw polyester resin (Cl-17, Ex-6). The VGCF included B-doped materials with a boron content of 0.01-5 mass%, OD of 0.05-0.5 micron and an aspect ratio of 10-25,000 (Cl-18, Claims 1-6). The wt ratio between VGCF and Ketjen Black of 1:1 in the example-6 at 0.25 wt% level.

The prior art fails to teach a composition containing graphite and the wt% of carbon black per the claims.

However, it would have been obvious to a person of ordinary skilled in the art to add graphite into the transparent and conductive compositions of Morita et al with predictable results and reasonable expectation of success, because the prior art discloses that a mixture of graphite and carbon black are added to electrically conductive and transparent compositions to enhance conductivity (Cl-2, Ln 10-20); and Morita desires improved conductivity (Cl-19, Claim-13). Addition of even small amounts of graphite and the amount of CB added lie close to the lower end of the corresponding components in the claims, and a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985)

Pertaining to the amount of VGCF in claims 1-2, the VGCF amount it overlaps with the range in claim-1-2, and prima facie obvious over instant claimed ranges.

Pertaining to claims 3-4, the prior art teaches boron doped branched VGCF.

Pertaining to claims 5-6 and 9-10, the prior art teaches ketzen-black.

Pertaining to claims 13-15 the prior art teaches a conductive layer containing a resin matrix; and mixing of the components would have been obvious. The prior art component ratios would overlap with the component ratios in claim-14.

Pertaining to claims 16-20 and 23, the prior art teaches forming coating composition by mixing the components and coating a conductive film over a surface (CI-16, Ex-5; CI-17, Ex-6).

### ***Allowable Subject Matter***

Claim 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record neither teaches nor fairly suggest a composition containing the specific components and their ratios.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALLAMBELLA VIJAYAKUMAR whose telephone number is (571)272-1324. The examiner can normally be reached on M-F 07-3.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 5712721358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/  
Dec 20, 2008.

/Stuart Hendrickson/  
Primary Examiner, Art Unit 1793